UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 2 1 2018

Mr. Thomas Frick
Director
Division of Environmental Assessment & Restoration
Florida Department of Environmental Protection
Mail Station 3000
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Frick:

The U.S. Environmental Protection Agency has completed its review of the document titled *Nutrient TMDL for DeLeon Spring (WBID 2921A) and Gemini Springs (WBID 2893)*[1] *and Documentation in Support of Development of Site-Specific Numeric Interpretations of the Narrative Nutrient Criteria.* The Florida Department of Environmental Protection (FDEP) submitted the DeLeon Spring and Gemini Springs (TMDLs) and revised Chapter 62-304, Florida Administrative Code (F.A.C.),[2] including the numeric nutrient criteria (NNC) for the subject water, in a letter to the EPA dated March 15, 2018, as a total maximum daily load (TMDL) and as new or revised water quality standards (WQS) with the necessary supporting documentation and certification by the FDEP General Counsel, pursuant to Title 40 of the Code of Federal Regulations part 131.

The NNC were adopted under Chapter 62-304.505(16)-(17) as site-specific numeric interpretations of paragraph 62-302.530(48)(b). As referenced in paragraph 62-302.531(2)(a), the FDEP intends for the submitted NNC to serve in place of the otherwise applicable criteria for springs set out in paragraph 62-302.531(2). The nitrate-nitrite TMDLs for DeLeon Spring and Gemini Springs would also constitute a site-specific numeric interpretation of the narrative nutrient criterion set forth in paragraph 62-302.530(48)(b), for this water segment.

The FDEP submitted the DeLeon Spring and Gemini Spring TMDLs to the EPA for review pursuant to both Clean Water Act (CWA) sections 303(c) and 303(d) since the TMDL will also act as a Hierarchy 1 (H1) site-specific interpretation of the state's narrative nutrient criterion pursuant to 62-302.531(2)(a)1.a. The EPA acknowledges that by virtue of establishing the TMDL in chapter 62-304, the FDEP is also establishing an H1 interpretation of the narrative nutrient criteria for this waterbody as new or revised WQS. The enclosed, combined WQS and TMDL decision document summarizes the EPA's review and approval of the WQS and TMDLs.

[1] WBID refers to waterbody identification
[2] Unless otherwise stated, all rule and subsection citations are to provisions in the Florida Administrative Code.

In accordance with sections 303(c) and (d) of the CWA, I am hereby approving the TMDLs promulgated in Chapter 62-304 for DeLeon Spring and Gemini Spring as both TMDLs and revised WQS for nitrate-nitrite. Any other criteria applicable to these waterbodies remain in effect. The requirements of paragraph 62-302.530(48)(a) also remain applicable.

If you have any comments or questions relating to the approval of the H1 WQS or TMDLs, please contact me at (404) 562-9345, or have a member of your staff contact Dr. Katherine Snyder in the WQS program at (404) 562-9840 or Ms. Laila Hudda of the TMDL program at (404) 562-9007.

Sincerely,

for Jeaneanne M. Gettle, Director
Water Protection Division

Enclosure

cc: Mr. Kenneth Hayman, FDEP
Mr. Daryll Joyner, FDEP
Ms. Erin Rasnake, FDEP

Florida Numeric Interpretation of the Narrative Nutrient Water Quality Criterion Through Total Maximum Daily Loads (TMDLs) to Establish a Hierarchy 1 (H1): Joint Water Quality Standards (WQS) and TMDL Decision Document

H1: Nutrient TMDL for DeLeon Spring (WBID 2921A) and Gemini Springs (WBID 2893)

ATTAINS TMDL ID: 68443

Location: Volusia and Seminole Counties, Florida

Status: Final

Criteria Parameter(s): The TMDL allocation for DeLeon Spring and Gemini Springs is 0.35 mg/L nitrate-nitrite (NO_3-NO_2) expressed as an annual geometric mean (AGM) not to be exceeded in any year. For the TMDL portion of the document, the percent load reductions of nitrate-nitrite are 56% for DeLeon Spring and 74% for Gemini Springs.

Impairment/Pollutant: DeLeon Spring and Gemini Springs in the Middle St. Johns River Basin (within the Lake Woodruff and Lake Monroe Planning Unit) are not meeting water quality criteria for nutrients and not supporting the designated uses of fish consumption; recreation; and propagation and maintenance of a healthy, well-balanced population of fish and wildlife. An H1 was submitted by the Florida Department of Environmental Protection (FDEP) that establishes site-specific criteria and TMDLs expressed as percent reductions to address the impairments.

Background: The FDEP submitted the final H1 for the *Nutrient TMDL for DeLeon Spring (WBID 2921A) and Gemini Springs (WBID 2893) and Documentation in Support of Development of Site-Specific Numeric Interpretations of the Narrative Nutrient Criteria* (the "report") by letter dated March 15, 2018. The draft report for DeLeon Spring and Gemini Springs is dated April 2017 and was received April 20, 2017. A final report dated June 2017 was received on April 11, 2018.

The submission included:

- Submittal letter
- Nutrient TMDL for DeLeon Spring and Gemini Springs and Documentation in Support of the Development of Site-Specific Numeric Interpretations of the Narrative Nutrient Criterion
- Documents related to Public Workshop
- Documents related to Public Hearing
- Documents related to Public Notice for Rulemaking and Rule Adoption
- Public Comments and Response
- Joint Administrative Procedures Committee (JAPC) Package for DeLeon Spring and Gemini Springs

This document explains how the submission meets the Clean Water Act (CWA) statutory requirements for the approval of WQS under section 303(c) and of TMDLs under section 303(d), and the EPA's implementing regulations in Title 40 of the Code of Federal Regulations (40 C.F.R.) parts 131 and 130, respectively.

REVIEWERS: WQS: Katherine Snyder, Life Scientist, Snyder.Katherine@epa.gov
TMDL: Laila Hudda, TMDL Coordinator, Hudda.Laila@epa.gov

Waterbodies addressed in this H1 Approval Action:

DeLeon Spring is a second magnitude spring with a surface area of 3,294 sq-meters or 0.813 acres, located in DeLeon Springs State Park 5 miles northwest of the town of DeLand (Figure 1). The DeLeon headspring is located at the base of the DeLand Ridge on the St. Johns River Offset lowlands. The headspring has a 170-foot diameter concrete-lined spring pool. Water exits from a vent in the north-central part of the pool, flowing downstream through a 0.5-mile run that feeds Spring Garden Lake. A series of lakes and creeks connects the headspring to the St. Johns River 12 miles downstream. The surrounding area includes portions of the DeLand Ridge, the Crescent City Ridge, and the St. John's River Offset river valley. The DeLand and Crescent City Ridges are local topographic highs, and the St. John's River Offset is a lowland dominated by the very poorly drained, mucky soils. The estimated contributing area for DeLeon Spring encompasses 101 square miles in Volusia County.

Gemini Springs with a surface area of 24,376 sq-meters or 6.023 acres is in DeBary, south of DeLand, and consists of two flowing spring vents with a combined historical second magnitude flow (Figure 2).[1] Gemini Spring 1 "has a circular pool about 15 feet in diameter, and flow is from a horizontal cavern opening in the limestone." Gemini Spring 2 "has a circular pool at times inundated by the reservoir." Spring 1 flows about 150 feet to the east-southeast and converges with the flow from Spring 2 at the west end of the reservoir. The reservoir is impounded on its east end by an earthen dam with a concrete weir outlet. Flow is through the weir, then 1.5 miles east and northeast down a creek and through a marsh area to Lake Monroe on the St. Johns River. The Gemini Springs maximum contributing area covers 43 square miles and includes portions of both Volusia and Seminole Counties, but the primary contributing area, which occurs in Volusia County covers only 5.5 square miles.

[1] The report provides information about three spring vents that are described and named (from west to east) as Spring 1, Spring 2, and Spring 3. The authors state that "Spring 1 reportedly was at one time only a seep, the flow of which has been augmented by an uncased flowing well drilled at the site." The current SJRWMD website for Gemini Springs states, "The springs are numbered Spring 1 (Spring 2 of Rosenau et al.1977) and Spring 2 (Spring 3 of Rosenau) from west to east. Spring 1, as identified by Rosenau, is actually an 8-inch well. The well was initially back-plugged from 340 feet to 141 feet below land surface in September 1991, and the well has been completely abandoned since July 2002" (SJRWMD 2017b). This report follows the revised naming convention adopted by the SJRWMD.

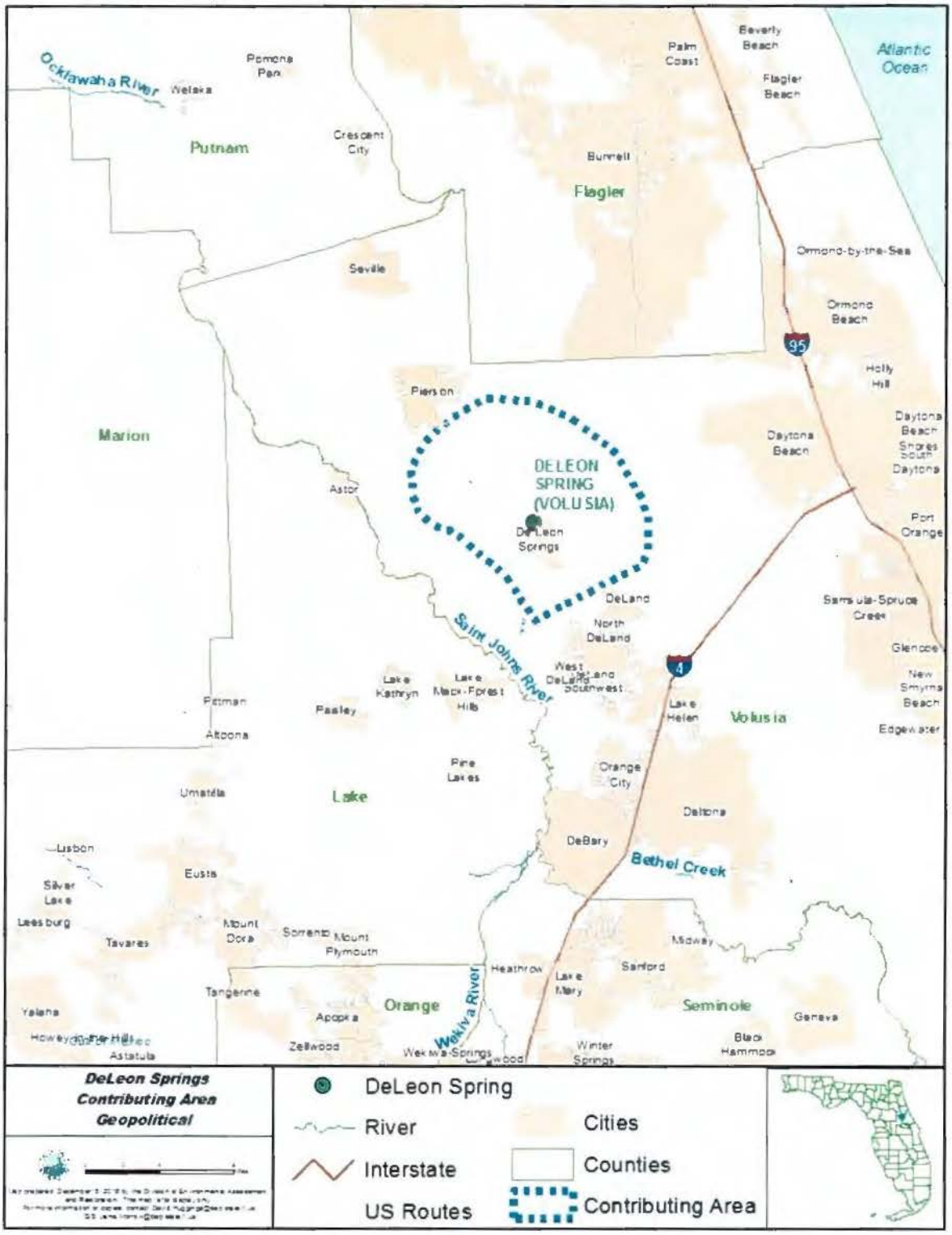

Figure 1 – DeLeon Spring Location

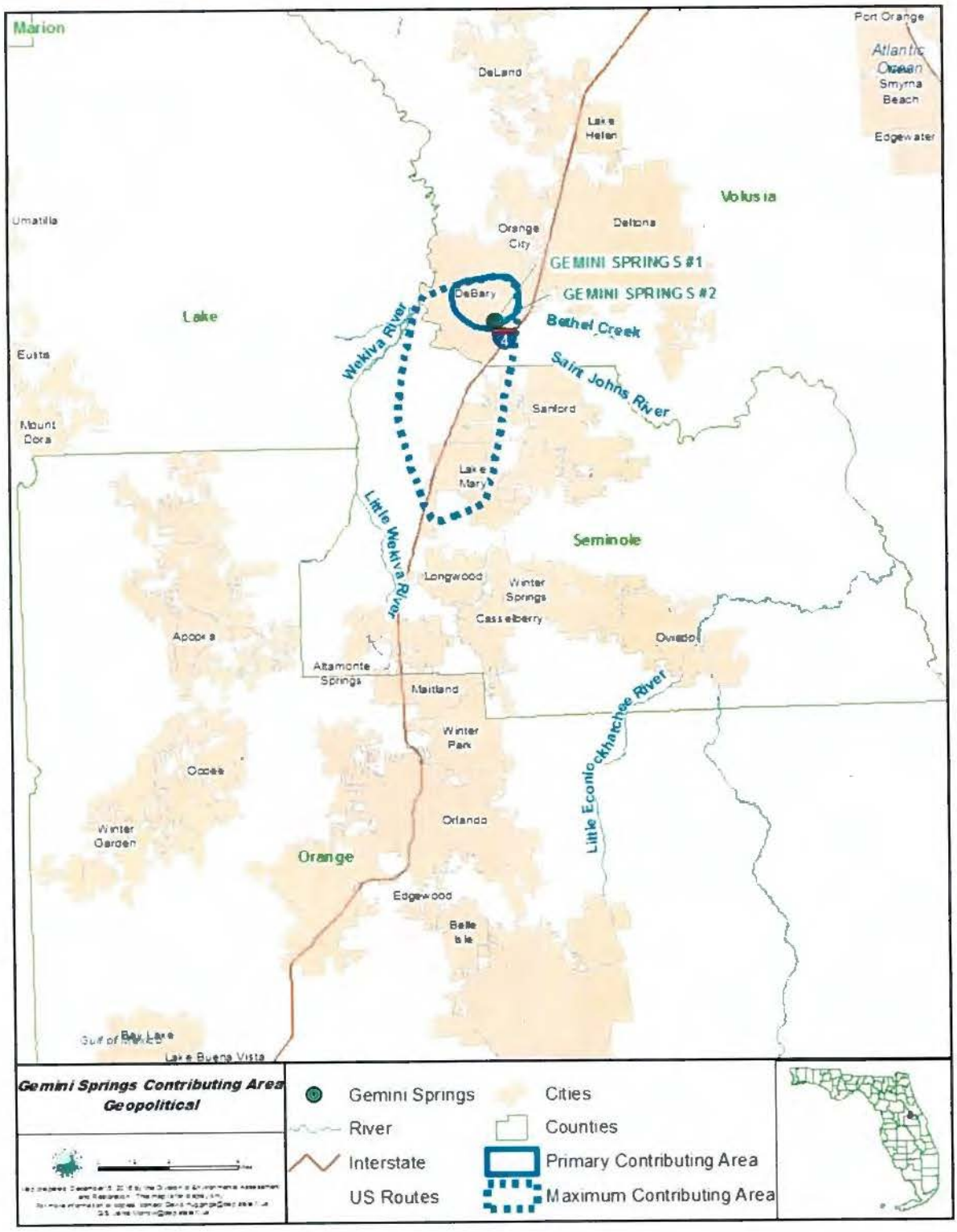

Figure 2 – Gemini Springs Location

EPA HIERARCHY 1 REVIEW DOCUMENT

DeLeon Spring (WBID 2921A) and Gemini Springs (WBID 2893) Middle St. Johns River Basin – Nutrients

This document contains the EPA's review of the above-referenced H1. This review document includes WQS and TMDL review guidelines that state or summarize currently effective statutory and regulatory requirements applicable to this approval action. Review guidelines are not themselves regulations. Any differences between review guidelines and the EPA's implementing regulations should be resolved in favor of the regulations themselves. The italicized sections of this document describe the EPA's statutory and regulatory requirements for approvable H1s. The sections in regular type reflect the EPA's analysis of the state's compliance with these requirements.

1. WQS Decision – Supporting Rationale

Section 303(c) of the CWA and the EPA's implementing regulations at 40 C.F.R. section 131 describe the statutory and regulatory requirements for approvable WQS. Set out below are the requirements for WQS submissions, under the CWA and the regulations. The information identified below is necessary for the EPA to determine if a submitted WQS meets the requirements of the CWA and, therefore, may be approved by the EPA.

1. Use Designations

Section 131.10(a) provides that each state must specify appropriate water uses to be achieved and protected. The classification of the waters of the state must take into consideration the use and value of water for public water supplies, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural, industrial, and other purposes including navigation. In no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the United States.

Assessment: DeLeon Spring and Gemini Springs are classified as Class III Freshwater (fish consumption; recreation; and propagation and maintenance of a healthy, well-balanced population of fish and wildlife).

2. Protection of Downstream Uses

Section 131.10(b) provides that in designating uses of a waterbody and the appropriate criteria for those uses, the state shall take into consideration the WQS of downstream waters and shall ensure that its WQS provide for the attainment and maintenance of the WQS of downstream waters.

Subsection 62-302.531(4) of the Florida Administrative Code (F.A.C.) requires that downstream uses be protected. An imbalance of flora occurring in DeLeon Spring and Gemini Springs is attributable to elevated nitrate-nitrite concentrations at the spring vent. When the nitrate-nitrite concentration thresholds established for DeLeon Spring and Gemini Springs are met, algal growth that contributes to the floral imbalance will be reduced so that algal coverage will be at background levels (<20%). Since the source of elevated nitrate-nitrite is from the headsprings, decreasing the concentration from the headsprings will reduce nitrate-nitrite in downstream waters.

DeLeon Spring flows to Spring Garden Lake (WBID 2921E) and Gemini Springs flows through DeBary Creek (WBID 2893A4) into Lake Monroe (WBID 2893D). Downstream waters are Class III with specific numeric interpretations of the narrative nutrient criteria for chlorophyll *a*, TN, and TP. Spring Garden Lake has no history of nutrient impairments and is not currently impaired for nutrients based on the most recent assessment results. Lake Monroe has an impairment for nutrients based on tropic state index (TSI) and had a TMDL developed and adopted in 2009. Reductions in nitrate-nitrate in Gemini Springs, upstream of Lake Monroe, will result in a reduction of a portion of the TN load to Lake Monroe.

Additionally, a Basin Management Action Plan (BMAP) was established in August 2012. Therefore, the reductions in nitrate-nitrite loads prescribed in this report are not expected to cause nutrient impairments downstream but will result in water quality improvements to downstream waters.

Assessment: The H1 is providing use protection for the downstream waters.

3. Water Quality Criteria

Section 131.11(a) provides that states must adopt those water quality criteria that protect the designated use. Such criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. For waters with multiple use designations, the criteria shall support the most sensitive use.

Florida's nitrate-nitrite numeric nutrient criterion for spring vents, set forth in Paragraph 62-302.531, F.A.C., is expressed as an AGM value of 0.35 mg/L, which is not to be exceeded more than once in any consecutive 3-year period. The FDEP's hierarchical approach gives preference to the numeric nutrient value of 0.35 mg/L of nitrate-nitrite for spring vents based on the quantifiable stressor-response relationships between nutrients and biological response. While TMDLs can establish a site-specific interpretation of the narrative nutrient criterion, both DeLeon Spring and Gemini Springs have the characteristics of typical freshwater, nontidal spring systems to which the numeric nutrient criterion (NNC) for spring vents apply.

Assessment: An AGM of 0.35 mg/L nitrate-nitrite not to be exceeded in any year is an appropriate target for the DeLeon Spring and Gemini Springs TMDL. The target contains a magnitude (based on concentration) and exceedance duration equal to the generally applicable NNC, and contains an exceedance frequency that is more stringent than the generally applicable NNC (a 1-year exceedance frequency versus a 3-period). All other criteria applicable to this waterbody remain in effect.

4. Scientific Defensibility

Section 131.11(b) provides that, in establishing criteria, states should establish numerical values based on 304(a) guidance, 304(a) guidance modified to reflect site-specific conditions, or other scientifically defensible methods.

Chapter 62-303, F.A.C., includes the methodology for listing impaired surface waters based on documentation that supports the determination of a waterbody's imbalance in flora or fauna attributable to nutrients. The FDEP selected a nitrate-nitrite threshold of 0.35 mg/L for DeLeon Spring and Gemini Springs, expressed as an AGM not to be exceeded in any year. This target is based directly on Rule 62-302.531, F.A.C., because no additional site-specific data were available, and the data did not indicate the presence of seasonality. These targets were selected because they will be protective of the Class III designated use and will reduce the growth rate of algae populations through nitrate reduction. Without variation in concentration by season, an annual target of 0.35 mg/L will be protective of the Class III designated use.

Assessment: The EPA determined that the selection of 0.35 mg/L nitrate-nitrite as the variable target is appropriate. The method used by the State to determine nitrate values that corresponds to the algal growth thresholds, is an appropriate and scientifically defensible method.

5. Public Participation

Section 131.20(b) provides that states shall hold a public hearing when revising WQS, in accordance with provisions of state law and the EPA's public participation regulation (40 C.F.R. part 25). The proposed WQS revision and supporting analyses shall be made available to the public prior to the hearing.

A public workshop was conducted by FDEP on May 22, 2017 in DeLand, Florida, to obtain comments on the draft nutrient TMDLs for Middle St. Johns River Basin. The workshop notice indicated that the nutrient TMDLs, if adopted, would constitute site-specific numeric interpretations of the narrative criterion set forth in paragraph 62-302.530(48)(b), F.A.C., that would replace the otherwise applicable NNC in subsection 62-302.531(2), F.A.C.,for these particular waters. FDEP also beld a public hearing on August 25, 2017 in Tallahassee, Florida.

Assessment: FDEP has met the public participation requirements for this H1.

6. Certification by the State Attorney General

Section 131.6(e) requires that the state provide a certification by the state Attorney General or other appropriate legal authority within the state that the WQS were duly adopted pursuant to state law.

A letter from FDEP General Counsel, Robert A. Williams, dated March 15, 2018 certified that the DeLeon Spring and Gemini Springs TMDLs were duly adopted as WQS pursuant to State law.

Assessment: FDEP has met the requirement for Attorney General certification for this H1.

7. Endangered Species Section 7 Consultation

Section 7(a)(2) of the Endangered Species Act (ESA) requires federal agencies, in consultation with the Services, to ensure that their actions are not likely to jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of designated critical habitat of such species.

Tbe existing default numeric nutrient criterion for the waterbody received concurrence by U.S. Fish and Wildlife Service (USFWS) on July 31, 2013. Because the site-specific criteria for nitrate-nitrite in this report are the same as the default criterion, an additional ESA section 7 consultation for this standards action is not required.

Assessment: The EPA has met the ESA requirements for this action.

II. TMDL Review

Section 303(d) of the CWA and the EPA's implementing regulations at 40 C.F.R Part 130 set out the statutory and regulatory requirements for an approvable TMDL. The following information is generally necessary for the EPA to determine if a submitted TMDL fulfills the legal requirements for approval under section 303(d) and the EPA regulations and should be included in the submittal package. Use of the verb "must" below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation.

1. Description of Waterbody, Pollutant of Concern, and Pollutant Sources

The TMDL analytical document must identify the waterbody as it appears on the state's 303(d) list, including the pollutant of concern. The TMDL submittal must include a description of the point and nonpoint sources of the pollutant of concern, including the magnitude and location of the sources. Where it is possible to separate natural background from nonpoint sources, a description of the natural background must be provided, including the magnitude and location of the source(s). Such information is necessary for the EPA's review of the load and wasteload allocations, which is required by regulation. The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as: (1) the assumed distribution of land use in the watershed; (2) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources; (3) present and future growth trends, if taken into consideration in preparing the TMDL; and (4) explanation and analytical basis for expressing the TMDL through surrogate measures, if applicable. Surrogate measures are parameters such as percent fines and turbidity for sediment impairments or chlorophyll a and phosphorus loadings for excess algae.

Refer to waterbody description on page 2 of this document.

FDEP assessed water quality impairments in DeLeon Spring and Gemini Springs, which were verified as impaired for nutrients based on elevated AGM nitrate-nitrite values during the Group 2, Cycle 3 verified period (January 2007 to June 2014). These springs were listed as impaired by nitrate-nitrite because of their elevated nitrate-nitrite concentrations and the corresponding evidence in the upper river and vicinity of the headsprings of imbalances in flora and fauna caused by algal smothering. DeLeon Spring and Gemini Springs both exceeded the nitrate-nitrite threshold for springs every year during the verified period.

FDEP provided land use information for the DeLeon Spring and Gemini Springs contributing areas. The land cover in the contributing area for DeLeon Spring is predominantly characterized by wetland, forest, agriculture, and low-density residential. Gemini Springs' maximum contributing area is characterized by wetland, medium-density residential, and water land use covers. The predominance and proximity of the residential land use could be an important contributing source of nitrogen to the springs.

There are two types of National Pollutant Discharge Elimination System (NPDES) point sources that are applicable to the springs: domestic wastewater and municipal separate storm sewer systems (MS4s). Five permitted domestic wastewater facilities discharge in the DeLeon Spring contributing area, and two in the Gemini Springs contributing area. All of these wastewater facilities use land application for the treated effluents. When the effluent is applied to the land surface, it infiltrates into groundwater and can deliver nutrient loads to the aquifer causing a significant load of nitrogen in spring areas. There are only two MS4 permits (one phase I and one phase II) within the contributing areas of the springs.

Nonpoint sources from a variety of anthropogenic sources were identified in the report: onsite treatment disposal systems (OSTDS); runoff from urban areas; livestock waste and agricultural fertilizer; and atmospheric deposition. There were cumulatively over 9,000 OSTDS in the contributing area of the

DeLeon Spring and Gemini Springs. In the Gemini Springs maximum and primary contributing area, 44% and 67% of the land area is mapped as urban, respectively. Runoff from urban areas include sources and activities that can contribute nitrogen to springs (domestic animal wastes and fertilizer lawns, golf courses, gardens). In the DeLeon Spring contributing area, land uses associated with livestock include pastures, horse farms, and dairies cover an area of 6,473 acres. Land uses associated with agricultural fertilizer use cover an area of 4,473 acres and include field and row crops, pastures, citrus groves, ferneries, and ornamental plant and tree nurseries. While not a nitrate source per se, stormwater runoff is an important pathway for nitrate to reach an impaired waterbody.

Assessment: The EPA concludes that FDEP has adequately identified the impaired waterbodies, the pollutant of concern, as well as the magnitude and location of the pollutant sources.

2. Description of the Applicable WQS and Numeric Water Quality Target

The TMDL submittal must include a description of the applicable state WQS, including the designated use(s) of the waterbody, the applicable numeric or narrative water quality criterion, and the statewide antidegradation policy. Such information is necessary for the EPA's review of the load and wasteload allocations which is required by regulation. A numeric water quality target for the TMDL (a quantitative value used to measure whether or not the applicable WQS is attained) must be identified. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, usually site-specific, must be developed from a narrative criterion and a description of the process used to derive the target must be included in the submittal.

As described in WQS review (sections 1.1 and 1.3), DeLeon Spring and Gemini Springs are Class III Freshwaters subject to the narrative nutrient criterion in paragraph 62-302.530(48)(b), F.A.C., and the generally applicable NNC at paragraph 62-302.531(2), F.A.C.

Per Rule 62-302.531, F.A.C., the applicable nutrient criterion for spring vents is 0.35 mg/L of nitrate-nitrite as an AGM, not to be exceeded more than once in any consecutive 3-year period. FDEP selected a nitrate-nitrite threshold of 0.35 mg/L for DeLeon and Gemini Springs, expressed as an AGM not to be exceeded in any year. Site-specific data were not available and the available data did not indicate the presence of seasonality; thus this target is based directly on Rule 62-302.531, F.A.C. Without variation in concentration by season, an annual target of 0.35 mg/L will be protective of Class III designated use.

Assessment: The EPA concludes that FDEP has properly addressed its WQS when setting a numeric water quality target.

3. Loading Capacity - Linking Water Quality and Pollutant Sources

As described in the EPA guidance, a TMDL identifies the loading capacity of a waterbody for a particular pollutant. The EPA regulations define loading capacity as the greatest amount of loading that a water can receive without violating WQS (40 C.F.R. section 130.2(f)). The loadings are required to be expressed as either mass-per-time, toxicity or other appropriate measure (40 C.F.R. section 130.2(i)). The TMDL submittal must identify the waterbody's loading capacity for the applicable pollutant and describe the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In most instances, this method will be a water quality model. Supporting documentation for the TMDL analysis must also be contained in the submittal, including the basis for assumptions, strengths and weaknesses in the analytical process, results from water quality modeling, etc. Such information is necessary for the EPA's review of the load and wasteload allocations which is required by regulation.

In many circumstances, a critical condition must be described and related to physical conditions in the waterbody as part of the analysis of loading capacity (40 C.F.R. section 130.7(c)(1)). The critical condition can be thought of as the "worst case"

scenario of environmental conditions in the waterbody in which the loading expressed in the TMDL for the pollutant of concern will continue to meet WQS. Critical conditions are the combination of environmental factors (e.g., flow, temperature, etc.) that results in attaining and maintaining the water quality criterion and has an acceptably low frequency of occurrence. Critical conditions are important because they describe the factors that combine to cause a violation of WQS and will help in identifying the actions that may have to be undertaken to meet WQS.

As mentioned in section 5.1 of the report, the normal process for determining the target loading and existing loading for a watershed, based on hydrologic and water quality modeling, was not appropriate for DeLeon Spring and Gemini Springs. The predominant source of nutrient loading to these springs is groundwater discharge at the springs and recharge to the aquifer can readily occur in most of the contributing area. Thus, a direct relationship between surface water loadings in the watershed was not appropriate and the diffuse loading situation required the use of an alternative approach for establishing the nutrient NNC and TMDLs. Additionally, for calculating the pollutant loading into the spring, flow and concentration data measured at the outlet of each spring vent were not available at the time of NNC and TMDL development. Therefore, the nitrate loads were not explicitly calculated, and the NNC and TMDL targets for these waters were established as concentrations. As explained in section I-3 and I-4 of this document, FDEP selected a nitrate-nitrite threshold of 0.35 mg/L for DeLeon Spring and Gemini Springs, expressed as an AGM not to be exceeded in any year.

The percent reductions for DeLeon Spring and Gemini Springs were based on the highest annual mean nitrate-nitrite concentration for each, which occurred in 2009 and 2016, respectively. The maximum annual mean nitrate-nitrite concentration for DeLeon Spring was 0.79 mg/L in 2009, and for Gemini Springs it was 1.33 mg/L in 2016. The percent reductions required to achieve the water quality target for each spring were calculated using the equation shown below.

$$\text{Load Reduction (\%)} = \left(\frac{\text{maximum mean concentration} - \text{target concentration}}{\text{maximum mean concentration}}\right) * 100$$

For DeLeon Spring:
[(0.79 mg/L – 0.35 mg/L) / 0.79 mg/L] * 100 = 56 % reduction in nitrate-nitrite.

For Gemini Springs:
[(1.33 mg/L – 0.35 mg/L) / 1.33 mg/L] * 100 = 74 % reduction in nitrate-nitrite.

Percent reductions of 56 % and 74% in nitrate-nitrite concentrations for the DeLeon Spring and Gemini Springs, respectively, are proposed because they are protective values that, when achieved, will satisfy the nutrient reduction requirement for the springs.

Assessment: The EPA concludes that the loading capacity, calculated using observed concentration data and water quality targets consistent with numeric water quality criteria, has been appropriately set at a level necessary to attain and maintain the applicable WQS. The H1 is based on a reasonable approach for establishing the relationship between pollutant loading and water quality.

4. Load Allocation (LA)

The EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity allocated to existing and future nonpoint sources and to natural background (40 C.F.R. section 130.2(g)). Load allocations may range from reasonably accurate estimates to gross allotments (40 C.F.R. section 130.2(g)). Where it is possible to separate natural

background from nonpoint sources, load allocations should be described separately for background and for nonpoint sources.

If the TMDL concludes that there are no nonpoint sources and/or natural background, or the TMDL recommends a zero load allocation, the LA must be expressed as zero. If the TMDL recommends a zero LA after considering all pollutant sources, there must be a discussion of the reasoning behind this decision, since a zero LA implies an allocation only to point sources will result in attainment of the applicable WQS, and all nonpoint and background sources will be removed.

Because no target loads were explicitly calculated in the report, the TMDL is represented as the percent reduction of nitrate-nitrite loadings required to achieve the nutrient target. The percent reduction assigned to all the nonpoint source areas (LA) is the same as that defined for the TMDL percent reduction. To achieve the AGM nitrate-nitrite target of 0.35 mg/L in DeLeon Spring and Gemini Springs, the nitrate-nitrite contribution to the impaired waters that comes from sources in the contributing area needs to be reduced by 56 % and 74 %, respectively.

The AGM nitrate-nitrite target of 0.35 mg/L and the percent reduction represent an estimate of the maximum reduction required to meet the target. It may be possible to meet the target before achieving the percent reductions because the nonpoint sources included in the LA include fertilizer, domestic wastewater from OSTDS and wastewater application sites, animal waste, atmospheric deposition, and stormwater discharges to groundwater. Additionally, the LA also includes loading in the contributing area from stormwater discharges regulated by FDEP and the water management district that are part of the NPDES Stormwater Program but do not discharge to the impaired waters.

Assessment: The EPA concludes that the LAs provided in the report are reasonable and will result in attainment of the WQS.

5. Wasteload Allocation (WLA)

The EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to existing and future point sources (40 C.F.R. section 130.2(h)). If no point sources are present or if the TMDL recommends a zero WLA for point sources, the WLA must be expressed as zero. If the TMDL recommends a zero WLA after considering all pollutant sources, there must be a discussion of the reasoning behind this decision, since a zero WLA implies an allocation only to nonpoint sources and background will result in attainment of the applicable WQS, and all point sources will be removed.

In preparing the WLAs, it is not necessary that each individual point source be assigned a portion of the allocation of pollutant loading capacity. When the source is a minor discharger of the pollutant of concern or if the source is contained within an aggregated general permit, an aggregated WLA can be assigned to the group of facilities. However, it is necessary to allocate the loading capacity among individual point sources as necessary to meet the WQS.

The TMDL submittal should also discuss whether a point source is given a less stringent wasteload allocation based on an assumption that nonpoint source load reductions will occur. In such cases, the state will need to demonstrate reasonable assurance that the nonpoint source reductions will occur within a reasonable time.

Currently, no NPDES wastewater facilities discharge directly into DeLeon Spring or Gemini Springs.[2] Any new potential discharger is expected to comply with the Class III criteria for nutrients and with nitrate limits consistent with this report. If it is determined that any of the wastewater facilities discharge into these springs, they will be subject to the assigned WLA.

[2] The TMDL report identifies domestic wastewater and MS4 facilities within the contributing area of the springs; however, these point sources do not discharge *directly* to DeLeon or Gemini springs.

The NPDES stormwater percent reductions, which represent the allowable nutrient loads that would result in ecosystem improvement, are listed is Table 1 (Table 6.1 of the report). To achieve the AGM nitrate-nitrite target of 0.35 mg/L in DeLeon Spring and Gemini Springs, the nitrate-nitrite contribution to the impaired waters that comes from sources in the contributing area needs to be reduced by 56% and 74%, respectively. The MS4 permittees in the contributing area are only responsible for reducing the anthropogenic loads associated with stormwater outfalls that they own or otherwise have responsible control over, and are not responsible for reducing other nonpoint source loads in their jurisdictions.

Table 1 – TMDL components for DeLeon Spring and Gemini Springs

Waterbody (WBID)	Parameter	TMDL[1] (mg/L)	TMDL % Reduction	Wasteload Allocation for Wastewater	Wasteload Allocation for NPDES Stormwater % Reduction[2]	Load Allocation % Reduction	MOS
DeLeon Spring (WBID 2921A)	Nutrients (Nitrate-Nitrite)	0.35	56	N/A	56	56	Implicit
Gemini Springs (WBID 2893)	Nutrients (Nitrate-Nitrite)	0.35	74	N/A	74	74	Implicit

N/A = Not applicable
1 Nutrient concentrations represent AGM, not to be exceeded.
2-Applies to existing and future NPDES discharges, if they occur.

Assessment: The EPA concludes that the WLAs provided in the report are reasonable and will result in the attainment of WQS.

6. Margin of Safety (MOS)

The statute and regulations require that a TMDL include a margin of safety to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA section 303(d)(1)(C), 40 C.F.R. section 130.7(c)(1)). The EPA's 1991 guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.

The report stated that an implicit MOS was used in the development of the TMDLs, consistent with the recommendations of the Allocation Technical Advisory Committee in 2001. The implicit MOS was used because the report is based on the conservative decisions associated with a number of the assumptions in determining the assimilative capacity (*i.e.*, loading and water quality response) for DeLeon Spring and Gemini Springs. For example, the highest AGM of measured nitrate-nitrite concentration in the 10-year data period (2007–16) was used when estimating the required percent reductions for DeLeon Spring and Gemini Springs to achieve the water quality target. Therefore, requiring the 0.35 mg/L target to be met every year should result in a nitrate-nitrite concentration even lower than the target concentration in the long term. This conservative approach is the most protective and adds to the implicit MOS.

Assessment: The EPA concludes that the H1 incorporates an adequate margin of safety.

7. Seasonal Variation

The statute and regulations require that a TMDL be established with consideration of seasonal variations. The method chosen for including seasonal variations in the TMDL must be described (CWA section 303(d)(1)(C), 40 C.F.R. section 130.7(c)(1)).

FDEP documented that there is minimal seasonal variation in nitrate concentrations for DeLeon Spring and Gemini Springs. The report shows the plotted mean monthly nitrate concentrations in both DeLeon Spring and Gemini Springs compared with average monthly rainfall at the weather station in DeLand, Florida, from 2007 through 2016 (Figure 5.1 of the report). The report also shows the mean monthly nitrate-nitrite concentrations and discharge for DeLeon Spring and Gemini Springs from 2007 to 2016 and 2008 to 2016, respectively (Figures 5.2 and 5.3 of the report). For both springs, there was no apparent relationship between nitrate-nitrite concentrations and precipitation or discharge.

Additionally, FDEP used a Kruskal-Wallis test to detect monthly variations in nitrate-nitrite concentrations in DeLeon Spring and Gemini Springs. Nitrate-nitrite data used in the development of the report were used in these tests, and no significant monthly variation in concentration was detected (summarized in Table 5.1 of the report).

Assessment: The EPA concludes that seasonal variations were considered and that the H1 allocations ensure protection of WQS throughout all seasons.

8. Monitoring Plan to Track TMDL Effectiveness

The EPA's 1991 document, Guidance for Water Quality-Based Decisions: The TMDL Process (EPA 440/4-91-001), recommends a monitoring plan to track the effectiveness of a TMDL, particularly when a TMDL involves both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur. Such a TMDL should provide assurances that nonpoint source controls will achieve expected load reductions, and such a TMDL should include a monitoring plan that describes the additional data to be collected to determine if the load reductions provided for in the TMDLs are occurring and leading to attainment of WQS.

Restoration of impaired waters in Florida is usually accomplished cooperatively with stakeholders by creating a basin management action plan, referred to as the BMAP. BMAPs typically include, among other components, implementation milestones, project tracking, water quality monitoring, and adaptive management procedures. Following the adoption of a TMDL, implementation may occur through specific requirements for domestic wastewater and MS4 permits and, as appropriate, through local or regional water quality initiatives or BMAPs.

NPDES permits are required for Phase I and Phase II MS4s as well as domestic and industrial wastewater facilities. MS4 Phase I permits require a permit holder to prioritize and take action to address a TMDL unless management actions are already defined in a BMAP for that particular TMDL. MS4 Phase II permit holders must also implement actions defined in a BMAP.

FDEP held a technical meeting for DeLeon Spring and Gemini Springs on January 25, 2018 to present the development process and approach for the DeLeon Spring and Gemini Springs BMAPs. Topics of discussion included a review of the BMAP process, a presentation on the nutrient source inventory for the basins, and potential approaches for addressing sources of nitrogen to groundwater to these basins.

Assessment: Although not a required element of the EPA's TMDL approval process, FDEP has initiated the process to create a BMAP for DeLeon Spring and Gemini Springs. The EPA is taking no action on the monitoring plan.

9. Implementation Plans

On August 8, 1997 Bob Perciasepe (EPA Assistant Administrator for the Office of Water) issued a memorandum, "New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs)," that directs Regions to work in partnership with states to achieve nonpoint source load allocations established for 303(d)-listed waters impaired solely or primarily by nonpoint sources. To this end, the memorandum asks that Regions assist states in developing implementation plans that include reasonable assurances that the nonpoint source load allocations established in the TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. The memorandum also includes a discussion of renewed focus on the public participation process and recognition of other relevant watershed management processes used in the TMDL process. Although implementation plans are not approved by the EPA, they help establish the basis for the EPA's approval of the TMDL.

Appendix A of the report specifies that the issue of nonpoint source pollution is addressed with statewide regulations requiring new development and redevelopment to treat stormwater before it is discharged. The stormwater treatment requirements are integrated with other stormwater flood control requirements of the water management districts. The State's water management districts are also required (Chapter 62-40, F.A.C.) to establish stormwater Pollution Load Reduction Goals (PLRGs) and adopt them as part of a Surface Water Improvement and Management (SWIM) plan, other watershed plans, or rule. PLRGs are a major component of the load allocation part of a TMDL.

Additionally, FDEP has initiated the development of a BMAP to reduce the amount of nutrients that are causing the verified impairments in the DeLeon Spring and Gemini Springs. The implementation of the BMAP will provide reasonable assurance that load reductions allocated in the report will be achieved.

Assessment: Although not a required element of the report approval, FDEP discussed how information derived from the TMDL analysis process will be used to develop PLRGs and implement BMPs that support implementation of the TMDL. The EPA is taking no action on the implementation portion of the submission.

10. Reasonable Assurances

EPA guidance calls for reasonable assurances when the TMDL is developed for waters impaired by both point and nonpoint sources. In a water impaired by both point and nonpoint sources, where a point source is given a less stringent wasteload allocation based on an assumption that nonpoint source load reductions will occur, reasonable assurance that the nonpoint source reductions will happen must be explained in order for the TMDL to be approvable. This information is necessary for the EPA to determine that the load and wasteload allocations will achieve WQS.

In a waterbody impaired solely by nonpoint sources, reasonable assurances that load reductions will be achieved are not required in order for a TMDL to be approvable. However, for such nonpoint source-only waters, states are strongly encouraged to provide reasonable assurances regarding achievement of load allocations in the implementation plans described in section 9, above. As described in the August 8, 1997 Perciasepe memorandum, such reasonable assurances should be included in state implementation plans and "may be non-regulatory, regulatory, or incentive-based, consistent with applicable laws and programs."

The report explains how the information provided will be used to implement restoration activities in the basin. Following the adoption of a TMDL, implementation takes place through specific requirements in

NPDES wastewater and MS4 permits and, as appropriate, through local or regional water quality initiatives or through BMAPs.

FDEP has plans to develop and implement a BMAP for reducing the levels of nutrients. The restoration of these waterbodies will depend on the active participation of stakeholders in the contributing area, including local governments, local landowners, and agricultural interests. The Florida Department of Agriculture and Consumer Services (FDACS) and the St. Johns River Water Management District (SJRWMD) will play important roles in helping agricultural producers implement best management practices (BMPs) and other measures (as appropriate) to address nutrient losses. A number of these stakeholder (SJRWMD, FDACS, Volusia County, Seminole County) have already been actively involved in data collection, analysis, or have attended the public workshop related to this TMDL development, which is a good indication of their interest and commitment in restoring the waterbodies.

As mentioned in section II-9 of this report, FDEP held a technical meeting for DeLeon Spring and Gemini Springs on January 25, 2018 to discuss the development of the Gemini Springs and DeLeon Spring BMAPs. FDEP plans on reevaluating the waterbodies even after the target concentrations are consistently being achieved to determine if nitrate continues to contribute to an imbalance of flora in the upper river as a result of excessive algal coverage. Additionally, the waterbodies will be reassessed as part of FDEP's watershed assessment cycle. The target concentrations in the report would be changed, if FDEP determines that further reductions in nitrate concentrations are needed to address the imbalance.

Assessment: The EPA considered the reasonable assurances contained in the report. Point sources are required to comply with their NPDES permits, which must include the requirements and assumptions of the H1. Reductions for nonpoint sources are expected to occur as a result of the incentive and voluntary programs that were already in place or will be developed as part of the BMAP with active participation of its stakeholders.

11. Public Participation

EPA policy is that there must be full and meaningful public participation in the TMDL development process. Each state must, therefore, provide for public participation consistent with its own continuing planning process and public participation requirements (40 C.F.R. section 130.7(c)(1)(ii)). In guidance, the EPA has explained that the final TMDL submitted to the EPA for review and approval must describe the state's public participation process, including a summary of significant comments and the state's responses to those comments. When the EPA establishes a TMDL, EPA regulations require the EPA to publish a notice seeking public comment (40 C.F.R. section 130.7(d)(2)).

Inadequate public participation could be a basis for disapproving a TMDL; however, where the EPA determines that a state has not provided adequate public participation, the EPA may defer its approval action until adequate public participation has been provided for, either by the state or by the EPA.

FDEP published a notice of development of rulemaking to initiate TMDL development in Florida Administrative Register (FAR) Volume 43, Number 10, January 17, 2017.

A notice of rule development to establish the TMDLs and to announce a public workshop to present the general TMDL approach to local stakeholders was published in the FAR Volume 43, Number 77, April 20, 2017. Additionally, a notice of public workshop (to be held on May 22, 2017) was also posted on the

FDEP TMDL website and announced in local newspapers (The Beacon and the Ft. Myers News Press). A public workshop for the DeLeon Spring and Gemini Springs TMDL was held on May 22, 2017.

A notice of rulemaking to establish the TMDLs and to announce a public hearing to receive public comments was published in the FAR Volume 43, Number 132, July 10, 2017. Additionally, a notice of public hearing (to be held on August 25, 2017) was also posted on the FDEP TMDL website and announced in local newspapers (The Beacon and the Ft. Myers News Press). A public hearing for the DeLeon Spring and Gemini Springs TMDL was held on August 25, 2017.

Written comments were received from several entities (Volusia County, Florida Department of Transportation, the Volusia Building Industry Association, and two private citizens) regarding the proposed DeLeon Spring and Gemini Springs TMDLs. FDEP reported that the stakeholder concerns were carefully reviewed and clarifications were made as appropriate, in the revised TMDL.

Assessment: The EPA concludes that the State involved the public during the development of the H1, provided adequate opportunities for the public to comment on the report, and provided reasonable responses to the comments received.

12. Submittal Letter

A submittal letter should be included with the TMDL analytical document and should specify whether the TMDL is being submitted for a technical review or is a final submittal. Each final TMDL submitted to the EPA must be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under section 303(d) of the CWA for EPA review and approval. This clearly establishes the state's intent to submit, and the EPA's duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final submittal, should contain such information as the name and location of the waterbody and the pollutant(s) of concern.

Assessment: Accompanying the State's (June 2017) final TMDLs for nutrients was a submittal letter from FDEP General Counsel, Robert A. Williams, dated March 15, 2018 requesting the review and approval of the nutrient TMDLs for the DeLeon Spring and Gemini Springs.

III. Conclusion

The Water Protection Division is **APPROVING** the H1 NNC and TMDLs addressed by this decision document in accordance with sections 303(c) and 303(d) of the CWA, as consistent with the CWA and 40 C.F.R. parts 131 and 130, respectively.

The H1 NNC presented in this decision document will constitute the site-specific numeric interpretation of the narrative nutrient criterion set forth in paragraph 62-302.530(48)(b), F.A.C., that will replace the otherwise applicable numeric criterion for nitrate-nitrite in paragraph 62-302.531(2)(b), F.A.C., for this particular water, pursuant to paragraph 62-302.531(2)(a)1.b., F.A.C. Based on the chemical, physical, and biological data presented in the development of the H1 NNC outlined above, the EPA concludes that the revised NNC for nitrate-nitrite provide for and protect healthy, well-balanced, biological communities in the waters to which the NNC apply and are consistent with the CWA and its implementing regulations at 40 C.F.R. 131.11.

Therefore, the revised nutrient criteria for nitrate-nitrite is 0.35 mg/L expressed as an AGM not to be exceeded in any year. All other criteria applicable to this waterbody remain in effect. The requirements of paragraph 62-302.530(48)(a), F.A.C., also remain applicable.

Furthermore, after a full and complete review, the EPA finds that the H1 for DeLeon Spring and Gemini Springs for nitrate-nitrite satisfies all of the elements of approvable TMDLs. This approval is for the *Nutrient TMDL for DeLeon Spring (WBID 2921A) and Gemini Springs (WBID 2893) and Documentation in Support of Development of Site-Specific Numeric Interpretations of the Narrative Nutrient Criteria*, addressing nitrate-nitrite for use impairments due to nutrients based on elevated TSI values.